

**POTENSI BINUKLEAT *Rhizoctonia* (BNR)  
SEBAGAI AGEN BIOKONTROL PENYAKIT BERCAK DAUN  
(*Cercospora personata* (Berk. & M.A.Curtis) Ellis.) PADA TANAMAN  
KACANG TANAH (*Arachis hypogaea* L.)**

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**ABSTRAK**

Kacang tanah (*Arachis hypogaea* L.) merupakan komoditas pangan yang banyak dibudidayakan di Indonesia karena memiliki nilai ekonomi yang tinggi serta kandungan nutrisi yang dapat dijadikan sebagai sumber protein dan minyak nabati. Serangan *C.personata* menyebabkan kacang tanah terserang penyakit bercak daun dan berdampak pada penurunan hasil panen baik secara kualitas maupun kuantitas. Dalam rangka mengurangi dampak penggunaan fungisida, digunakannya agen biokontrol yang lebih ramah lingkungan merupakan langkah yang tepat untuk mengendalikan serangan *C.personata*. Penggunaan jamur Binukleat *Rhizoctonia* dilaporkan efektif dalam mengendalikan laju pertumbuhan jamur patogen seperti *R. solani*, *Pythium* spp., *Phytophthora* spp., dan *Fusarium* spp. pada tanaman mentimun. Penelitian ini perlu dilakukan untuk mengetahui potensi BNR sebagai agen biokontrol penyakit bercak daun akibat serangan *C.personata* pada tanaman kacang tanah. Metode yang dilakukan dalam penelitian ini yaitu diantaranya: isolasi dan identifikasi jamur *C.personata* dari daun kacang tanah yang bergejala bercak daun serta tiga isolat BNR meliputi *Ceratorhiza* sp., *Sistotrema* sp., dan *Ceratobasidium* sp. dari perakaran anggrek *Phalaenopsis amabilis* dan *Dendrobium lineale*, uji Postulat Koch, uji daya hambat isolat BNR terhadap *C.personata* secara *in vitro*, serta uji efektivitas BNR sebagai agen biokontrol *C.personata* pada semai tanaman kacang tanah.

Hasil penelitian menunjukkan bahwa *C.personata* memiliki hifa bersekat dan bercabang serta konidia yang pendek, sedikit melengkung, berisi, dan bersekat. BNR memiliki hifa berinti dua, berwarna hialin, sudut percabangan hifa 90°, dan masing-masing memiliki sel moniloid yang berbeda. *Ceratorhiza* sp. memiliki sel moniloid berbentuk *elongate barrel shape*, *Sistotrema* sp. memiliki sel moniloid berbentuk *clavate* pada ujung hifa, serta *Ceratobasidium* sp. tidak memiliki sel moniloid. Hasil uji daya hambat secara *in vitro* pada hari ketujuh menunjukkan bahwa *Sistotrema* sp. memiliki persentase penghambatan tertinggi yaitu 54,25%, dan *Ceratorhiza* sp. sebesar 51,62% serta *Ceratobasidium* sp. sebesar 49,04%. Hasil uji efektivitas secara *in vivo* pada minggu ketujuh menunjukkan bahwa inokulasi *Sistotrema* sp. paling efektif dalam menurunkan intensitas penyakit hingga sebesar 89,8%, dan *Ceratorhiza* sp. sebesar 86,4% serta *Ceratobasidium* sp. sebesar 77,9%. Inokulasi *Sistotrema* sp. terbukti pada minggu ketujuh dapat meningkatkan tinggi tanaman sebesar 23,76% serta jumlah daun sehat sebesar 52,64%; *Ceratorhiza* sp. meningkatkan tinggi tanaman sebesar 15,94% serta jumlah daun sehat sebesar 34,58%; dan *Ceratobasidium* sp. meningkatkan tinggi tanaman sebesar 14,70% serta jumlah daun sehat sebesar 28,66%.

Kata Kunci: bercak, biokontrol, binukleat, daun, kacang.

**POTENTIAL OF BINUCLEATE *Rhizoctonia* (BNR) AS A BIOCONTROL AGENT OF LEAF SPOT DISEASE CAUSED BY *Cercospora personata* (Berk. & M.A.Curtis) Ellis. ON GROUNDNUT (*Arachis hypogaea* L.)**

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**ABSTRACT**

Groundnut (*Arachis hypogaea* L.) is a food commodity that is widely cultivated in Indonesia because it has high economic value and nutritional content that can be used as a source of protein and vegetable oil. *C.personata* caused peanuts to develop leaf spot disease and has impact on decreasing crop yields both in quality and quantity. In order to reduce the impact of the use of fungicides, the use of biocontrol agents that are more environmentally friendly is the right step to control *C.personata*. The use of Binucleate *Rhizoctonia* was reported to be effective in controlling the growth rate of pathogenic jamur such as *R. solani*, *Pythium* spp., *Phytophthora* spp., and *Fusarium* spp. on cucumber plants. This research needs to be conducted to determine the potential of BNR as a biocontrol agent for leaf spot disease caused by *C.personata* on groundnut plants. This research was conducted to isolate and identify *C.personata* from groundnut leaves with leaf spot symptoms and three BNR isolates were identified as *Ceratorhiza* sp., *Sistotrema* sp., and *Ceratobasidium* sp. from the roots of *Phalaenopsis amabilis* and *Dendrobium liniale*, the Koch Postulates test, test of the inhibition of BNR isolates against *C.personata* *in vitro*, and test the effectiveness of BNR as a biocontrol agent for *C.personata* in groundnut seedling.

The results showed that *C.personata* had septed and branched hyphae and conidia were short, slightly curved, filled and insulated. BNR has hyphae binuclear, hyaline colored, hyphal branching angle of 90°, and each has a different monilioid cell. *Ceratorhiza* sp. has elongate barrel-shaped monilioid cells, *Sistotrema* sp. has clavate-shaped monilioid cells at the end of the hyphae, as well as *Ceratobasidium* sp. do not have monilioid cells. The results of the *in vitro* inhibition test on the seventh day showed that *Sistotrema* sp. had the highest inhibition percentage of 54.25%, and *Ceratorhiza* sp. of 51.62% and *Ceratobasidium* sp. of 49.04%. The results of the *in vivo* effectiveness test in the seventh week showed that the inoculation of *Sistotrema* sp. most effective in reducing disease intensity by 89.8%, and *Ceratorhiza* sp. of 86.4% and *Ceratobasidium* sp. of 77.9%. Inoculation of *Sistotrema* sp. proven in the seventh week to increase plant height by 23.76% and the number of healthy leaves by 52.64%; *Ceratorhiza* sp. increased plant height by 15.94% and the number of healthy leaves by 34.58%; and *Ceratobasidium* sp. increased plant height by 14.70% and the number of healthy leaves by 28.66%.

Keywords: biocontrol, binucleate, leaf, peanut, spot.